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IN THE UNITED STATES PATENT & TRADEMARK OFFICE

RE APPLICATION OF	:
Yunji HAMURO et al.	: GROUP ART UNIT: 1653
SERIAL NO: 09/731,830	: EXAMINER: KAM
FILED: DECEMBER 8, 2000	:

RCE FILED: HEREWITH

FOR: METHOD OF SUPPRESSING IMMUNE RESPONSES BY REDUCING INTRACELLULAR CONTENT OF GLUTATHIONE IN MACROPHAGES AND MONOCYTES

APPEAL BRIEF

ASSISTANT COMMISSIONER FOR PATENTS
WASHINGTON, D.C. 20231

SIR:

This is an appeal from the Final Rejection of the claims dated February 21, 2003.

I. REAL PARTY IN INTEREST

The real party in interest is Ajinomoto Co., Inc., by virtue of the assignment recorded on September 20, 1999 at Reel/Frame 010242/0712.

II. RELATED APPEALS AND INTERFERENCES

Appellants, Appellants' legal representative and their assignee are not aware of any appeals or interferences which will directly affect or be directly affected by or having a bearing on the Board's decision in this appeal.

III. STATUS OF THE CLAIMS

The appealed claims are Claims 30-47, the only claims in the case.

IV. STATUS OF THE AMENDMENT FILED UNDER 37 C.F.R. §1.116

No amendments have been filed subsequent to the Final Rejection dated February 21, 2003.

V. THE APPEALED CLAIMS

A copy of the appealed claims is submitted in the attached Appendix I.

VI. SUMMARY OF THE INVENTION

The present invention relates to a method of inducing a Th2 response in a subject, comprising reducing the content of reductive glutathione in macrophages in the subject, thereby (a) increasing the capability of the macrophages to produce IL-6 and (b) decreasing the capability of the macrophages to produce IL-12 and NO. See the specification at page v, lines 19-22 and page 6, lines 14-24.

The present invention also relates to a method of suppressing cellular immune responses in a subject by skewing the Th1/Th2 balance to Th2, comprising reducing the content of reductive glutathione in the macrophages in the subject. See the specification at page 7, lines 20-26.

In one embodiment, the intracellular content of reductive glutathione is reduced to at most 0.1 nmoles of glutathione per 5×10^5 macrophage cells. See the specification at page 7, lines 14-16.

In another embodiment, the subject is suffering from gastrointestinal inflammatory disease. See the specification at page 10, lines 7-8.

In another embodiment, the subject is suffering from chronic rheumatoid arthritis. See the specification at page 10, lines 19-20.

In another embodiment, the subject is suffering from hepatitis. See the specification at page 7, line 8.

In another embodiment, the subject is suffering from hepatic cirrhosis. See the specification at page 7, line 8.

In another embodiment, reducing the content of reductive glutathione in macrophages in the subject comprises administering an effective amount of a cystine derivative to the patient. See the specification at page 9, lines 30-31.

VII. THE ISSUE OF THIS APPEAL

The sole issue in this appeal is whether Claims 30-47 are unpatentable under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter regarded as the invention.

VIII. GROUPING OF THE CLAIMS

The claims do not stand or fall together. In the arguments presented below, Appellants provide an explanation of why Claims 30-47 are separately patentable.

IX. ARGUMENTS IN TRAVERSAL OF THE REJECTION

A. The Independent Claims

1. Claim 30

The Examiner's rejection of Claim 30 is incorrect as a matter of law.

A claim is definite if one skilled in the art can appreciate the metes and bounds of the claims in light of the specification. *Exxon Research & Engineering Co.* v. *United States*, 265 F.3d 1371, 60 USPQ2d 1272 (Fed. Cir. 2001). Thus, a claim is not interpreted in a vacuum. Rather, it is interpreted in light of the teachings of the specification.

The Federal Circuit has explicitly held that a claim is not indefinite for failing to recite a claim limitation which is allegedly necessary to define a workable invention. *Miles Laboratories, Inc.* v. *Shandon Inc.*, 997 F.2d 870, 27 USPQ2d 1123 (Fed. Cir. 1993), cert. denied, 510 U.S. 1100 (1994).

The Federal Circuit has also explicitly held that the claims do not explain technology. In *S3 Inc.* v. *nVIDIA Corp.*, 259 F.3d 1364, 59 USPQ2d 1745 (Fed. Cir. 2001), the court stated:

> The purpose of the claims is not to explain the technology or how it works, but to state the legal boundaries of the patent grant.

By that standard, Claim 30 is definite.

Claim 30 is directed to a method of inducing a Th2 response in a subject, comprising reducing the content of reductive glutathione in macrophages in the subject, thereby (a) increasing the capability of the macrophages to produce IL-6 and (b) decreasing the capability of the macrophages to produce IL-12 and NO. The present specification provides a detailed teaching for inducing a Th2 response in a subject and suppressing cellular immune responses in a subject by skewing the Th1/Th2 balance to Th2. See pages 5-60 of the

specification. In particular, the specification describes 26 working examples which relate to the practice of the claimed invention.

In view of the foregoing, one skilled in the art reading Claim 30 in light of the specification will readily appreciate the metes and bounds of that claim. Accordingly, Claim 30 is definite within the meaning of 35 U.S.C. §112, second paragraph.

2. Claim 31

The Examiner's rejection of Claim 31 is incorrect as a matter of law.

A claim is definite if one skilled in the art can appreciate the metes and bounds of the claims in light of the specification. *Exxon Research & Engineering Co.* v. *United States*, 265 F.3d 1371, 60 USPQ2d 1272 (Fed. Cir. 2001). Thus, a claim is not interpreted in a vacuum. Rather, it is interpreted in light of the teachings of the specification.

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> The purpose of the claims is not to explain the technology or how it works, but to state the legal boundaries of the patent grant.

By that standard, Claim 31 is definite.

Claim 31 is directed to a method of suppressing cellular immune responses in a subject by skewing the Th1/Th2 balance to Th2, comprising reducing the content of reductive

glutathione in the macrophages in the subject. The specification describes how the redox status in the macrophages controls the immune system in detail and examples for the claimed method of reducing glutathione in macrophages are also provided. See pages The present specification provides a detailed teaching for suppressing cellular immune responses in a subject by skewing the Th1/Th2 balance to Th2. See pages 5-60 of the specification. In particular, the specification describes 26 working examples which relate to the practice of the claimed invention.

B. The Dependent Claims

1. Claim 32

Claim 32 depends from Claim 30 and recites that the intracellular content of reductive glutathione is reduced to at most 0.1 nmoles of glutathione per 5×10^5 macrophage cells. Thus, this claim additionally specifies an upper limit of the amount of glutathione in the macrophage cells. Since Claim 30 is definite for the reasons discussed above, one skilled in the art reading Claim 32 in light of the specification would appreciate the metes and bounds of the claim. Accordingly, Claim 32 is definite within the meaning of 35 U.S.C. §112, second paragraph.

2. Claim 33

Claim 33 depends from Claim 31 and recites that the intracellular content of reductive glutathione is reduced to at most 0.1 nmoles of glutathione per 5×10^5 macrophage cells. Thus, this claim additionally specifies an upper limit of the amount of glutathione in the macrophage cells. Since Claim 31 is definite for the reasons discussed above, one skilled in the art reading Claim 33 in light of the specification would appreciate the metes and bounds

of the claim. Accordingly, Claim 33 is definite within the meaning of 35 U.S.C. §112, second paragraph.

3. Claim 34

Claim 34 depends from Claim 30 and recites that the subject is suffering from gastrointestinal inflammatory disease. Thus, this claim additionally specifies a specific disease state in the subject. Since Claim 30 is definite as discussed above, one skilled in the art reading Claim 34 in light of the specification would appreciate the metes and bounds of the claim. Accordingly, Claim 34 is definite within the meaning of 35 U.S.C. §112, second paragraph.

4. Claim 35

Claim 35 depends from Claim 30 and recites that the subject is suffering from chronic rheumatoid arthritis. Thus, this claim additionally specifies a specific disease state in the subject. Since Claim 30 is definite as discussed above, one skilled in the art reading Claim 35 in light of the specification would appreciate the metes and bounds of the claim. Accordingly, Claim 35 is definite within the meaning of 35 U.S.C. §112, second paragraph.

5. Claim 36

Claim 36 depends from Claim 30 and recites that the subject is suffering from hepatitis. Thus, this claim additionally specifies a specific disease state in the subject. Since Claim 30 is definite as discussed above, one skilled in the art reading Claim 36 in light of the specification would appreciate the metes and bounds of the claim. Accordingly, Claim 36 is definite within the meaning of 35 U.S.C. §112, second paragraph.

6. Claim 37

Claim 37 depends from Claim 30 and recites that the subject is suffering from hepatic cirrhosis. Thus, this claim additionally specifies a specific disease state in the subject. Since Claim 30 is definite as discussed above, one skilled in the art reading Claim 37 in light of the specification would appreciate the metes and bounds of the claim. Accordingly, Claim 37 is definite within the meaning of 35 U.S.C. §112, second paragraph.

7. Claim 38

Claim 38 depends from Claim 32 and recites that the subject is suffering from gastrointestinal inflammatory disease. Thus, this claim additionally specifies a specific disease state in the subject. Since Claim 32 is definite as discussed above, one skilled in the art reading Claim 38 in light of the specification would appreciate the metes and bounds of the claim. Accordingly, Claim 38 is definite within the meaning of 35 U.S.C. §112, second paragraph.

8. Claim 39

Claim 39 depends from Claim 32 and recites that the subject is suffering from chronic rheumatoid arthritis. Thus, this claim additionally specifies a specific disease state in the subject. Since Claim 32 is definite as discussed above, one skilled in the art reading Claim 39 in light of the specification would appreciate the metes and bounds of the claim. Accordingly, Claim 39 is definite within the meaning of 35 U.S.C. §112, second paragraph.

9. Claim 40

Claim 40 depends from Claim 32 and recites that the subject is suffering from hepatitis. Thus, this claim additionally specifies a specific disease state in the subject. Since Claim 32 is definite as discussed above, one skilled in the art reading Claim 40 in light of the specification would appreciate the metes and bounds of the claim. Accordingly, Claim 40 is definite within the meaning of 35 U.S.C. §112, second paragraph.

10. Claim 41

Claim 41 depends from Claim 32 and recites that the subject is suffering from hepatic cirrhosis. Thus, this claim additionally specifies a specific disease state in the subject. Since Claim 32 is definite as discussed above, one skilled in the art reading Claim 41 in light of the specification would appreciate the metes and bounds of the claim. Accordingly, Claim 41 is definite within the meaning of 35 U.S.C. §112, second paragraph.

11. Claim 42

Claim 42 depends from Claim 33 and recites that the subject is suffering from gastrointestinal inflammatory disease. Thus, this claim additionally specifies a specific disease state in the subject. Since Claim 33 is definite as discussed above, one skilled in the art reading Claim 42 in light of the specification would appreciate the metes and bounds of the claim. Accordingly, Claim 42 is definite within the meaning of 35 U.S.C. §112, second paragraph.

12. Claim 43

Claim 43 depends from Claim 33 and recites that the subject is suffering from chronic rheumatoid arthritis. Thus, this claim additionally specifies a specific disease state in the subject. Since Claim 33 is definite as discussed above, one skilled in the art reading Claim 43 in light of the specification would appreciate the metes and bounds of the claim. Accordingly, Claim 43 is definite within the meaning of 35 U.S.C. §112, second paragraph.

15. Claim 44

Claim 44 depends from Claim 33 and recites that the subject is suffering from hepatitis. Thus, this claim additionally specifies a specific disease state in the subject. Since Claim 33 is definite as discussed above, one skilled in the art reading Claim 44 in light of the specification would appreciate the metes and bounds of the claim. Accordingly, Claim 44 is definite within the meaning of 35 U.S.C. §112, second paragraph.

16. Claim 45

Claim 45 depends from Claim 33 and recites that the subject is suffering from hepatic cirrhosis. Thus, this claim additionally specifies a specific disease state in the subject. Since Claim 33 is definite as discussed above, one skilled in the art reading Claim 45 in light of the specification would appreciate the metes and bounds of the claim. Accordingly, Claim 45 is definite within the meaning of 35 U.S.C. §112, second paragraph.

17. Claim 46

Claim 46 depends from Claim 30 and recites that the content of reductive glutathione in macrophages in the subject comprises administering an effective amount of a cystine

derivative to the patient. Thus, this claim explicitly specifies the type of compound to administer to the patient, i.e., a cystine derivative. The specification provides a detailed description of the cystine derivative at pages 9-10. In fact, examples of cystine derivatives are described therein.

Since Claim 30 is definite as discussed above, and the specification provides a detailed description of the cystine derivative, one skilled in the art reading Claim 46 in light of the specification would appreciate the metes and bounds of the claim. Accordingly, Claim 46 is definite within the meaning of 35 U.S.C. §112, second paragraph.

18. Claim 47

Claim 47 depends from Claim 31 and recites that reducing the content of reductive glutathione in macrophages in the subject comprises administering an effective amount of a cystine derivative to the patient. Thus, this claim explicitly specifies the type of compound to administer to the patient, i.e., a cystine derivative. The specification provides a detailed description of the cystine derivative at pages 9-10. In fact, examples of cystine derivatives are described therein.

Since Claim 31 is definite as discussed above, and the specification provides a detailed description of the cystine derivative, one skilled in the art reading Claim 47 in light of the specification would appreciate the metes and bounds of the claim. Accordingly, Claim 47 is definite within the meaning of 35 U.S.C. §112, second paragraph.

X. RELIEF REQUESTED

In view of the foregoing, reversal of the Examiner's rejections of the appealed claims under 35 U.S.C. §112, second paragraph, is requested.

Respectfully submitted,

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APPENDIX I

Pending Claims in Application Serial No. 09 731,8330

30. A method of inducing a Th2 response in a subject, comprising reducing the content of reductive glutathione in macrophages in the subject, thereby (a) increasing the capability of the macrophages to produce IL-6 and (b) decreasing the capability of the macrophages to produce IL-12 and NO.

31. A method of suppressing cellular immune responses in a subject by skewing the Th1/Th2 balance to Th2, comprising reducing the content of reductive glutathione in the macrophages in the subject.

32. The method of Claim 30, wherein the intracellular content of reductive glutathione is reduced to at most 0.1 nmoles of glutathione per 5 x 10^5 macrophage cells.

33. The method of Claim 31, wherein the intracellular content of reductive glutathione is reduced to at most 0.1 nmoles of glutathione per 5 x 10^5 macrophage cells.

34. The method of Claim 30, wherein the subject is suffering from gastrointestinal inflammatory disease.

35. The method of Claim 30, wherein the subject is suffering from chronic rheumatoid arthritis.

36. The method of Claim 30, wherein the subject is suffering from hepatitis.

37. The method of Claim 30, wherein the subject is suffering from hepatic cirrhosis.

38. The method of Claim 32, wherein the subject is suffering from gastrointestinal inflammatory disease.

39. The method of Claim 32, wherein the subject is suffering from chronic rheumatoid arthritis.

40. The method of Claim 32, wherein the subject is suffering from hepatitis.

41. The method of Claim 32, wherein the subject is suffering from hepatic cirrhosis.

42. The method of Claim 33, wherein the subject is suffering from gastrointestinal inflammatory disease.

43. The method of Claim 33, wherein the subject is suffering from chronic rheumatoid arthritis.

44. The method of Claim 33, wherein the subject is suffering from hepatitis.

45. The method of Claim 33, wherein the subject is suffering from hepatic cirrhosis.

46. The method of Claim 30, wherein reducing the content of reductive glutathione in macrophages in the subject comprises administering an effective amount of a cystine derivative to the patient.

47. The method of Claim 31, wherein reducing the content of reductive glutathione in macrophages in the subject comprises administering an effective amount of a cystine derivative to the patient.